

Dr. Shauna M. McGillivray

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ACADEMIC BACKGROUND

EDUCATION

1999, B.A., *magna cum laude*
Concordia College, Moorhead, MN
Majors: Biology Honors, Chemistry and German

2006, Ph.D. in Biomedical Science
University of California, San Diego, La Jolla, CA

TCU APPOINTMENTS AND RANK

2009-2015 Assistant Professor of Biology, Texas Christian University
2015-present Associate Professor of Biology, Texas Christian University

ADMINISTRATIVE APPOINTMENTS

2013- present Associate Director of the TCU Pre-Health Professions Institute

PREVIOUS TEACHING AND RESEARCH APPOINTMENTS

2006-2009 Postdoctoral Research Fellow, University of San Diego, CA
Summer 2008 Adjunct Instructor, San Diego State University

TEACHING RESPONSIBILITIES

CURRENT COURSES

BIOL 30304: Microbiology (2010-present)
BIOL 30603: Cell, Molecular and Developmental Biology* (2012-present)
BIOL 40800/70950: Special Topics: Immunobiology of Disease* (2020-present)
BIOL 40300: Teaching of Biology (2010-present)
BIOL 40900: Independent Research in Biology (2011-present)
BIOL 40803: Biological Research and Writing (2012-present)
BIOL 40033: Seniors Honors Research (2011-present)
BIOL 70980/70990: Thesis (2012-present)

PAST COURSES

BIOL 10504: Introductory Biology I* (2012-2013)
BIOL 40303/60403: Medical Microbiology (2010-2019)
BIOL 40021/60011: Introduction to Research in the Biological Sciences* (2010-2013)

* Denotes team-taught course

STUDENT MENTORING

M.S. Theses Directed

1. Chris Evans. 2013. Role of the ClpXP protease in the Structure/Composition of the Cell Wall of *Bacillus anthracis*.
2. Elizabeth Franks. 2013. Role of the Tellurium Resistance Genes in the Pathogenesis of *Bacillus anthracis*.
3. Yueyang Huang. 2015. Investigating tmRNA and SmpB as Antibiotic Targets for Methicillin-Resistant *Staphylococcus aureus*
4. Kevin Claunch. 2016. Role of LrgAB and the ClpXP Protease in Antibiotic Resistance and Autolysis in Gram-Positive Pathogens.
5. Jacob Malmquist. 2018. Development and Use Of A *G. Mellonella* Infection Model to Discover Novel Virulence Mutants in *B. Anthracis*.
6. Lang Zou. 2020. Investigation of ClpX mediated antibiotic resistance in *B. anthracis*: Independent player or part of the ClpXP protease?
7. Vuong Do. Expected 2022. The role of the Clp system in the *B. anthracis* stress response.
8. Kyle Gallegos. Expected 2023. Investigation of novel genes involved in iron acquisition in *Bacillus anthracis*.
9. Salina Hona. Expected 2023. Investigation of SigM pathway in antibiotic resistance.

Service on Graduate Committees

1. Lily Wu, MS, TCU, 2013
2. Mason Yockey, MS, TCU, 2013
3. Zahidul Alam, Ph.D., UT-Arlington 2015
4. Raghavendra Swamy Sreeperumbuduru, MS, TCU 2015
5. Morgan Thompson, MS, TCU 2017
6. Lynsey Malin, MS, TCU 2020
7. John Reeks, PhD, TCU 2021

Undergraduate Theses Directed or Co-Directed

1. Sarah Flanigan. 2011. Departmental Honors. Investigation of the role of the ClpXP protease in the Cell Wall Composition of *Bacillus anthracis*.
2. Renee Rosati. 2012. Departmental Honors. The role of ClpX in *Bacillus anthracis* cell charge.
3. Julio Manceras. 2012. McNair Program. Discovery of novel iron acquisition genes.

4. Vanessa Norris. 2013. Departmental Honors. Environmental Stress Potentiates the Infectivity of *Bacillus anthracis* in *Caenorhabditis elegans*. Co-directed with Dr. Phil Hartman.
5. Kevin Claunch. 2014. Departmental Honors. Connection of the ClpXP protease to autolytic activity and antibiotic resistance in *Bacillus anthracis*.
6. Madison Rogan. 2015. Departmental Honors. Discovery of novel virulence mutants by assessing hydrogen peroxide sensitivity in *Bacillus anthracis*.
7. Candler Boortz. 2016. Departmental Honors. YwIE and the regulation of the oxidative stress response in *Bacillus anthracis*.
8. Quynh Ngo. 2016. Departmental Honors. Investigating the connection between the ClpXP protease and FtsZ in antimicrobial peptide resistance in *Bacillus anthracis*.
9. Lauren Callaghan. 2020. Departmental Honors. Discovering novel genes that allow *Bacillus anthracis* to survive host defenses.
10. Graham Ellis. 2020. Departmental Honors. The role of SigM and GlpF on cell wall active antibiotic susceptibility in *Bacillus anthracis* Sterne.
11. Taylor Kelly. 2020. Departmental Honors. Discovering novel genes important for survival against reactive oxygen species in *Bacillus anthracis*.
12. Gabrielle Griffin. 2020. McNair Program. Discovery of Novel Genes in *Bacillus anthracis* Important for Surviving Reactive Oxygen Species
13. Iman Ali. 2021. Departmental Honors. Mechanisms of Zinc Oxide Toxicity.

Undergraduate Students Mentored in Research

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|-----------------------------------|------------------------------|-----------------------------------|----------------------------------|
| 1. Danae Spencer | 2. Gina Tirbeni | 3. Sarah Flanigan | 4. Micah Vaughn ¹ |
| 5. Elizabeth Franks | 6. Renee Rosati ² | 7. Julia Manceras ^{2,3} | 8. Vanessa Norris ³ |
| 9. Jessica Learned | 10. Mariah Green | 11. Kevin Claunch ^{2,3} | 12. Madison Rogan ^{1,2} |
| 13. Candler Boortz | 14. Quynh Ngo ¹⁻³ | 15. Madeline Bush ¹⁻³ | 16. Esther Pae |
| 17. Blake Williams | 18. Sam Baugh ^{1,2} | 19. Quinn Losefsky ¹⁻³ | 20. Taylor Kelly |
| 21. Lauren Callaghan ¹ | 22. Graham Ellis | 23. Iman Ali ^{1,2} | 24. Toby Do |
| 25. Gabrielle Griffin | 26. Lauren Klingemann | 27. Bella Kouretas | 28. Trevon Jelinek |
| 29. Alex Caron | 30. Luke Hamilton | 31. Victoria Adelke | |

¹coauthor on publication; ²presented at external conference; ³presentation award

Service on Undergraduate Honors Theses Committees

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|--------------------------|----------------------------|----------------------------|
| 1. Thomas Parnell, 2014 | 2. Manoj Chelvanambi, 2015 | 3. Hailey Hayes, 2015 |
| 4. Michael Zeiser, 2015 | 5. Cornelius Canon, 2015 | 6. Emily Corrigan, 2019 |
| 7. Katherine Neely, 2019 | 8. Misty Self, 2019 | 9. Haley Schluterman, 2021 |

RESEARCH AND CREATIVE ACTIVITY

REFEREED PUBLICATIONS

**denotes TCU undergraduate student, **denotes TCU graduate student*

Publications 10-22 published while at TCU

1. Aho E.L., A.M. Keating, and **S.M McGillivray**, 2000, A comparative analysis of pilin genes from pathogenic and nonpathogenic *Neisseria* species, *Microbiol Pathogenesis*, v. 28, p. 81-88. <https://doi.org/10.1006/mpat.1999.0325>
2. Jacobs S.B.R, D. Coss, **S.M. McGillivray**, and P.L. Mellon, 2003, Nuclear factor Y and steroidogenic factor 1 physically and functionally interact to contribute to cell-specific expression of the mouse FSH β gene, *Molecular Endocrinology*, v. 8, p.1470-83. <https://doi.org/10.1210/me.2002-0286>
3. Bailey J.S., N. Rave-Harel, **S.M. McGillivray**, D. Coss and P.L. Mellon, 2004, Activin regulation of the follicle-stimulating hormone β -subunit gene involves Smads and the TALE homeodomain proteins Pbx1 and Prep1, *Molecular Endocrinology*, v.18, p. 1158-70. <https://doi.org/10.1210/me.2003-0442>
4. **McGillivray S.M.**, J.S. Bailey, R. Ramezani, B.J. Kirkwood, and P.L. Mellon, 2005, Mouse GnRH receptor gene expression is mediated by the LHX3 homeodomain protein, *Endocrinology*, v.146, p. 2180-2185. <https://doi.org/10.1210/en.2004-1566>
5. Thackray V.G., **S.M. McGillivray**, and P.L. Mellon, 2006, Androgens, progestins and glucocorticoid steroid induce follicle stimulating hormone β -subunit gene expression at the level of the gonadotrope. *Molecular Endocrinology*, v. 20, p. 2062-79. <https://doi.org/10.1210/me.2005-0316>
6. **McGillivray S.M.**, V.G. Thackray, D. Coss D, and P.L. Mellon PL, 2006, Activin and glucocorticoids synergistically activate follicle-stimulating hormone β -subunit gene expression in the immortalized L β T2 gonadotrope cell line. *Endocrinology*, v. 148, p. 762-73. <https://doi.org/10.1210/en.2006-0952>
7. Hsu, L.C., R. Ali, **S. McGillivray**, P.H. Tseng, S. Mariathasan, E. Humke, L. Eckmann, J. Powell, V. Nizet, V. Dixit, M. Karin, 2008, A NOD2-NALP1 complex mediates caspase-1 dependent IL-1 β secretion in response to *Bacillus anthracis* infection and muramyl dipeptide, *Proc Natl Acad Sci USA*, v. 105, p. 7803-7808. <https://doi.org/10.1073/pnas.0802726105>
8. Van Sorge, N.M., C.M. Ebrahimi, **S.M. McGillivray**, D. Quach, M. Sabet, D.G. Guiney, K.S. Doran, 2008, Anthrax toxins inhibit neutrophil signaling pathways in brain endothelium and contribute to the pathogenesis of meningitis, *PLoS ONE*, v. 3, e2964. <https://doi.org/10.1371/journal.pone.0002964>

9. **McGillivray, S.M.**, C. Ebrahimi, N. Fisher, M. Sabet, D.X. Zhang, Y. Chen, N.M. Haste, R. Aroian, R.L. Gallo, D.G. Guiney, A.M. Friedlander, T.M. Koehler, and V. Nizet, 2009, ClpX protease contributes to antimicrobial peptide resistance and virulence phenotypes of *Bacillus anthracis*, *Journal of Innate Immunity*, v. 1, p. 494-506. <https://doi.org/10.1159/000225955>
10. Rooijackers, S.H., S.L. Rasmussen, **S.M. McGillivray**, T.B. Bartnikas, A.B. Mason, A.M. Friedlander, and V. Nizet, 2010, Human transferrin confers serum resistance against *Bacillus anthracis*, *Journal of Biological Chemistry*, v. 285, p. 27609-13. <https://doi.org/10.1074/jbc.M110.154930>
11. Guichard, A., **S.M. McGillivray**, M. Beatriz-Cruz, N. van Sorge, V. Nizet, and E. Bier, 2010, Anthrax toxins cooperatively inhibit endocytic recycling by the Rab11/Sec15 exocyst, *Nature*, v. 467, p. 854-8. <https://doi.org/10.1038/nature09446>
12. Kisseleva, T., M. Köckritz-Blickwede, D. Reichart, **S.M. McGillivray**, G. Wingender, M. Ronenberg, C.K. Glass, V. Nizet, and D.A. Brenner, 2011, Fibrocyte-like cells recruited to the spleen support innate and adaptive immune responses to acute injury or infection, *Journal of Molecular Medicine*, v. 89, p. 997-1013. <https://doi.org/10.1007/s00109-011-0756-0>
13. Yang, H., C. Sikavi, K. Tran, **S.M. McGillivray**, V. Nizet, M. Yung, A. Chang, and J.H. Miller, 2011, Papillation in *Bacillus anthracis* colonies: a tool for finding new mutators, *Molecular Microbiology*, v. 79, p. 1276-93. <https://doi.org/10.1111/j.1365-2958.2011.07519.x>
14. Kho, M.F., A. Bellier, V. Balasubramani, Y. Hu, W. Hsu, C. Nielsen-Leroux, **S. M. McGillivray**, V. Nizet, and R. V. Aroian, 2011, The pore-forming protein Cry5B elicits the pathogenicity of *Bacillus sp.* against *Caenorhabditis elegans*, *PloS One*, v. 6, e29122. <https://doi.org/10.1371/journal.pone.0029122>
15. **McGillivray, S.M.**, D.N. Tran, N.S. Ramadoss, J.N. Alumasa, C.Y. Okumura, G. Sakoulas, M.M. Vaughn*, D.X. Zhang, K.C. Keiler, and V. Nizet, 2012, Pharmacological inhibition of the ClpXP protease increases bacterial susceptibility to host cathelicidin antimicrobial peptides and cell-envelope active antibiotics, *Antimicrobial Agents and Chemotherapy*, v. 56, p. 1854-61. <https://doi.org/10.1128/AAC.05131-11>
16. Franks, S.E.** , C. Ebrahimi, A. Hollands, C.Y. Okumura, R.V. Aroian, V. Nizet, and **S.M. McGillivray**, 2014, A novel role for tellurium resistance genes in the pathogenesis of *Bacillus anthracis*, *Infection and Immunity*, v. 82, p. 1132-40. <https://doi.org/10.1128/IAI.01614-13>
17. Sreeperebudur, R.S.** , Z.M. Abid, K.M. Claunch**, H.H. Chen, **S.M. McGillivray** and E.E. Simanek, 2016, Synthesis and antimicrobial activity of triazine dendrimers with DABCO groups, *RSC advances*, v. 6, p. 8806-8810. <https://doi.org/10.1039/C5RA10388F>

18. Claunch, K.C.** , M. Bush*, C.R. Evans**, J.A. Malmquist**, M.C. Hale and **S.M. McGillivray**, 2018, Transcriptional profiling of the *clpX* mutant in *Bacillus anthracis* reveals regulatory connection with the *IrgAB* operon, *Microbiology*, v. 164, p. 659-669.
<https://doi.org/10.1099/mic.0.000628>
19. Huang, Y.** , J.N. Alumasa, L.T. Callaghan*, R.S. Baugh*, C.D. Rae, K.C. Keiler and **S.M. McGillivray**, 2019, A small molecule inhibitor of trans-translation synergistically interacts with cathelicidin antimicrobial peptides to impair survival of *Staphylococcus aureus*, *Antimicrobial Agents and Chemotherapy*, v. 63, p. e02362-18.
<https://doi.org/10.1128/AAC.02362-18>
20. Malmquist, J.A.** , M.R. Rogan*, and **S.M. McGillivray**, 2019, *Galleria mellonella* as an infection model for *Bacillus anthracis* Sterne. *Front. Cell. Infect. Microbiol.* v. 9.
<https://doi.org/10.3389/fcimb.2019.00360>
21. Reeks, J.M.** , I. Ali*, W.J. Moss, E. Davis, **S.M. McGillivray**, and Y.M. Strzhemechny, 2021, Microscale ZnO with controllable crystal morphology as a platform to study antibacterial action on *Staphylococcus aureus*. *Biointerphases*, v. 16, 031003.
<https://doi.org/10.1116/6.0000957>
22. Zou, L.** , C.R. Evans**, V.D. Do**, Q.P. Losefsky*, D.Q. Ngo*, and **S.M. McGillivray**, 2021, Loss of the ClpXP protease leads to decreased resistance to cell-envelope targeting antimicrobials in *Bacillus anthracis* Sterne. *Frontiers in Microbiology*, v. 12, 2247.
<https://doi.org/10.3389/fmicb.2021.719548>

EXTERNAL GRANT PROPOSALS

Funded External Grant Proposals

Validation of *trans*-translation as a target for antibiotic development in *S. aureus*. NIH R21/R33, Ken Keiler (Pennsylvania State University) primary investigator. \$64,000 subaward to S. McGillivray. 2014-2016

Not Funded External Grant Proposals

1. REU Site: Exposing undergraduates to science through research in ecology and conservation biology or cellular and molecular biology. National Science Foundation. M. Chumchal and M. Chumley- Co-PIs (A. Akkaraju, R. Drenner, A. Hale, P. Hartman, J. Horner, S. McGillivray, M. Misamore, D. Williams – Senior Personnel) Amount Requested: \$203,200 (\$7257 to S. McGillivray) Submitted: August 2010
2. Role of the ClpXP protease in maintenance of the bacterial cell wall. Norman Hackerman Advanced Research Program (full proposal). S. McGillivray PI. Amount requested: \$74,700. Submitted: December 2011.

3. Role of the ClpXP protease in bacterial resistance to cell-wall targeting antimicrobial agents. Norman Hackerman Advanced Research Program (pre-proposal). S. McGillivray PI. Amount Requested: \$70,000. Submitted: September 2013.
4. Effective strategies to enhance learning for students in multiple STEM disciplines: Evaluating learning during inductive classification and predictive inference making. NSF. Tauber, U PI. S. McGillivray, consultant. Amount requested: \$20,636 to S. McGillivray. Submitted: 2015.
5. Role of the ClpXP protease in cell division and antimicrobial resistance. NIH R15. Amount requested \$299,964. Submitted June 2017.

INTERNAL GRANT PROPOSALS

Funded Faculty Grants Awarded to S. McGillivray

1. Increasing bacterial susceptibility to antimicrobial compounds. TCU Research and Creative Activities Fund and Junior Faculty Summer Research Program, \$10,000, 2010-2011.
2. Role of the bacterial protease, ClpXP, in maintaining the bacterial cell envelope. TCU Research and Creative Activities Fund and Junior Faculty Summer Research Program, \$10,000, 2011-2012.
3. Role of the tellurium resistance genes in the pathogenesis of *Bacillus anthracis*. TCU Research and Creative Activities Fund, \$4,000, 2012-2013.
4. Connection between autolytic activity and antibiotic sensitivity in *Bacillus anthracis*. TCU Research and Creative Activities Fund, \$4,000, 2013-2014.
5. Role of the ClpXP protease in antibiotic resistance in *Staphylococcus aureus*. TCU Research and Creative Activities Fund, \$4,000, 2016-2017.
6. Validation of SmpB as a potential antibiotic target in *Staphylococcus aureus*. TCU Research and Creative Activities Fund, \$4,500, 2017-2018.
7. Development of the wax worm *Galleria mellonella* as an *in vivo* infection model for *Bacillus anthracis* Sterne, TCU Research and Creative Activities Fund, \$4,500, 2018-2019.
8. Zinc oxide as an antibiotic: Understanding the mechanisms behind its toxicity. TCU Research and Creative Activities Fund, \$6,000, 2020-2021.

Funded Student Grants (used to support research projects in S. McGillivray's lab)

1. Investigation of cell charge in *Bacillus anthracis* and its role in antimicrobial defense. Student Government Association Award to Renee Rosati. Funded \$400. 2012-2013.

2. Discovery of novel iron acquisition genes in *Bacillus anthracis*. Student Government Association Award to Julio Manceras. Funded \$400. 2012-2013.
3. Role of LrgAB in susceptibility to antibiotics and antimicrobial peptides in *Bacillus anthracis*. SERC Undergraduate Research Grant to Kevin Claunch, \$1500, 2012-2013
4. Inability of mutant *Bacillus anthracis* to sequester iron from hemoglobin. SERC Undergraduate Research Grant to Mariah Green, \$1347, 2013-2014.
5. *Galleria mellonella* as an infection model to study the pathogenesis of *Bacillus anthracis*. SERC Undergraduate Research Grant to Madison Rogan, \$1499, 2014-2015.
6. Overexpression of FtsZ in *Bacillus anthracis*. SERC Undergraduate Research Grant to Quynh Ngo, \$1494, 2015-2016.
7. Role of ClpX in *S. aureus* antimicrobial virulence and survival. SERC Undergraduate Research Grant to Candler Boortz, \$1499, 2015-2016.
8. Role of the ClpXP protease in antibiotic resistance in *S. aureus*. SERC Undergraduate Research Grant to Madeline Bush, \$1497, 2016-2017.
9. Role of ClpP1 and ClpP2 in antibiotic resistance in *Bacillus anthracis*. SERC graduate research grant to Lang Zou, \$2000, 2019-2020.
10. ClpX mediated in antimicrobial resistance in *B. anthracis*: independent player or part of a larger complex? SERC undergraduate Research Grant to Quinn Losefsky, \$1500, 2018-2019
11. ClpX-regulated genes and their effect on antibiotic susceptibility in *Bacillus anthracis*. SERC undergraduate research grant to Graham Ellis, \$1495, 2019-2020.
12. Screening *Bacillus anthracis* mutant library for novel virulence genes. SERC undergraduate research grant to Taylor Kelly, \$1497, 2019-2020.
13. Discovering new genes that allow *Bacillus anthracis* to survive host defenses. SERC undergraduate research grant to Lauren Callaghan, \$1498, 2019-2020
14. Mechanisms of zinc oxide antibacterial activity. SERC undergraduate research grant to Iman Ali, \$1227, 2020-2021.
15. The identification and characterization of a potential novel virulence gene in *Bacillus anthracis*. SERC undergraduate research grant to Lauren Klingemann, \$1230, 2021-2022.

16. Confirmation and prioritization of potential *Bacillus anthracis* virulence mutants using the *Galleria Mellonella* model of infection. SERC undergraduate research grant to Bella Kouretas, \$1227, 2021-2022.
17. Role of Clp ATPase family members in regulation of stress response in *Bacillus anthracis*. SERC graduate research grant to Vuong Do, \$1500, 2021-2022.
18. Role of Reactive Oxygen Species in the Mechanisms of Zinc Oxide Nanoparticle Killing. SERC undergraduate research grant to Alex Caron, \$1485, 2021-2022.
19. Discovering Novel *Bacillus Anthracis* Mutants with Increased Hydrogen Peroxide Susceptibility. SERC undergraduate research grant to Victoria Adelke, \$1498, 2021-2022.

PRESENTATIONS AT SCHOLARY MEETINGS (2009-present)

****denotes TCU undergraduate student, **denotes TCU graduate student, presenting individual***

1. **McGillivray, S.M.**, C.E. Ebrahimi, N. Fisher, Y. Chen, R.L. Gallo, K.C. Keiler, A.M. Friendlander, T.M. Koehler, and V. Nizet, 2009, Role of ClpX in antimicrobial resistance and systemic virulence, The International *Bacillus anthracis*, *B. cereus*, and *B. thuringiensis* Conference, Santa Fe, New Mexico. **Oral Presentation**
2. **McGillivray, S.M.**, D.N. Tran, N.S. Ramadoss, D.X. Zhang, K.C. Keiler, and V. Nizet, 2010, Pharmacological inhibition of the ClpXP protease leads to increased susceptibility to host immune Defense and Antimicrobial Agents, 110th General Meeting for the American Society for Microbiology, San Diego CA. **Poster Presentation**
3. **McGillivray, S.M.**, 2010, Role of the ClpXP protease in the virulence of *B. anthracis*, 18th International Microbial Genomes Conference, Lake Arrowhead CA. **Invited Speaker.**
4. **Franks, S.E.**** and **S.M. McGillivray**, 2011, Investigation of novel virulence factors in *B. anthracis*, 43rd Annual Fall Meeting of the Texas Branch of the American Society for Microbiology, Arlington, TX. **Poster Presentation.**
5. **Franks, S.E.****, C. Ebrahimi, E. Couch, R. Aroian, V. Nizet, and **S.M. McGillivray**, 2012, Discovery of novel virulence factors in *Bacillus anthracis*, Texas Society of Microscopy, Fort Worth, TX. **Oral presentation:**
6. **Evans, C.R.****, E. Couch, and **S.M. McGillivray**, 2012, Investigation of the cell wall structure of Δ ClpX *Bacillus anthracis*, Texas Society of Microscopy, Fort Worth, TX. **Oral presentation.**
7. **Franks, S.E.****, C. Ebrahimi, R. Aroian, V. Nizet, and **S.M. McGillivray**, 2012, Investigation of novel virulence factors in *Bacillus anthracis*, 112th General Meeting of the American Society for Microbiology, San Francisco, CA. **Poster presentation.**

8. Evans, C.R.**, S.E. Flanigan*, and **S.M. McGillivray**, 2012, Role of the ClpXP protease in the susceptibility of *Bacillus anthracis* to antimicrobial agents, 112th General Meeting of the American Society for Microbiology, San Francisco, CA. **Poster Presentation.**
9. Manceras, J.* and **S.M. McGillivray**, 2012, Discovery of novel iron acquisition genes in *B. anthracis*, Texas Branch of the American Society of Microbiology, Waco, TX. **Poster presentation.**
10. Evans, C.R.** and **S.M. McGillivray**, 2012, Role of ClpXP protease on *Bacillus anthracis* resistance to cell wall-acting antimicrobials, Texas Branch of the American Society of Microbiology, Waco, TX. **Poster presentation.**
11. Franks, S.E.**, C. Ebrahimi, A. Hollands, C.Y. Okumura, R.V. Aroian, V. Nizet, **S.M. McGillivray**, 2012, The role of tellurium resistance genes in the virulence of *Bacillus anthracis*, Texas Branch of the American Society of Microbiology, Waco, TX. **Oral presentation.**
12. Manceras, J.* and **S.M. McGillivray**, 2012, Discovery of novel iron acquisition genes in *B. anthracis*, North Texas Research Symposium, Fort Worth, TX. **Poster presentation.**
13. Rosati, R.* and **S.M. McGillivray**, 2012, The role of ClpX in *Bacillus anthracis* cell charge, North Texas Research Symposium, Fort Worth, TX. **Poster presentation.**
14. Franks, S.E.**, C. Ebrahimi, A. Hollands, C.Y. Okumura, R.V. Aroian, V. Nizet, and **S.M. McGillivray**, 2012, The role of tellurium resistance genes in the virulence of *Bacillus anthracis*, North Texas Research Symposium, Fort Worth, TX. **Poster presentation.**
15. Evans, C.R.** and **S.M. McGillivray**, 2012, Role of ClpXP protease on *Bacillus anthracis* resistance to cell wall-acting antimicrobials, North Texas Research Symposium, Fort Worth, TX. **Poster presentation.**
16. Evans, C.R.**, E. Couch, and **S.M. McGillivray**, 2013, The effect of media conditions on cell wall thickness and cell division of *Bacillus anthracis* lacking ClpX, Texas Society of Microscopy, Irving, TX. **Oral presentation.**
17. Franks, S.E.**, C. Ebrahimi, A. Hollands, C.Y. Okumura, R.V. Aroian, V. Nizet, and **S.M. McGillivray**, 2013, Use of *Caenorhabditis elegans* to identify a novel role for tellurium resistance genes in the pathogenesis of *Bacillus anthracis*, International Conference on *Bacillus anthracis*, *B. cereus*, and *B. thuringiensis*, Victoria, British Columbia, Canada. **Oral presentation.**
18. Claunch, K.C.* and **S.M. McGillivray**, 2013, Role of LrgAB in antibiotic resistance and autolytic activity in *Bacillus anthracis* and connection to the ClpXP protease, North Texas Research Symposium, Fort Worth, TX. **Poster presentation.**

19. Huang, Y.**, J. Alumasa, K.C. Keiler, **S.M. McGillivray**, 2014, Small molecule inhibition of trans-translation impairs *Staphylococcus aureus* viability, Annual Meeting of the Texas Branch of the American Society of Microbiology, Houston TX. **Poster presentation.**
20. **McGillivray S. M.**, 2014, Surviving the host: Stress response and virulence in *Bacillus anthracis*. Annual Meeting of the Texas Branch of the American Society of Microbiology, Houston TX. **Invited speaker.**
21. Claunch, K.C.*, C.R. Evans**, and **S.M. McGillivray**, 2014, Connection of the ClpXP protease to autolytic activity and antibiotic resistance in *Bacillus anthracis*, 114th General Meeting of the American Society of Microbiology, Boston, MA. **Poster presentation.**
22. Claunch, K.C.**, C.R. Evans**, and **S.M. McGillivray**, 2015, Connection of the ClpXP protease to antibiotic resistance and autolytic activity in *Bacillus anthracis*, Fall Meeting of the Texas Branch of the American Society of Microbiology, Huntsville TX. **Oral presentation.**
23. Rogan, M.R.* and **S.M. McGillivray**, 2015, Protein tyrosine phosphatase YwIE as a potential regulator of oxidative stress in *Bacillus anthracis*, Texas Branch Spring Meeting of the American Society for Microbiology, New Braunfels, TX. **Poster presentation.**
24. Ngo, Q.* and **S.M. McGillivray**, 2016, Investigating the connection between the ClpXP protease and FtsZ in antimicrobial peptide resistance in *Bacillus anthracis*, Texas Branch Spring Meeting of the American Society for Microbiology, New Braunfels, TX. **Poster presentation.**
25. Bush, M.*, K.M. Claunch**, J. Malmquist**, C.R. Evans**, and **S.M. McGillivray**, 2016, Role of the ClpXP protease in antibiotic resistance in *B. anthracis* and *S. aureus*, Fall Meeting of the Texas Branch of the American Society of Microbiology, Dallas TX. **Poster presentation.**
26. Bush, M.*, K.M. Claunch**, J. Malmquist**, C.R. Evans**, and **S.M. McGillivray**, 2017, Role of the ClpXP protease in antibiotic resistance in *B. anthracis* and *S. aureus*, Spring Meeting of the Texas Branch of the American Society of Microbiology, New Braunfels TX. **Oral presentation.**
27. Malmquist, J.** and **S.M. McGillivray**, 2018, Development and use of a *G. Mellonella* infection model to discover novel virulence mutants in *B. anthracis*, Spring Meeting of the Texas Branch of the American Society of Microbiology, New Braunfels TX. **Oral presentation.**
28. Baugh, R.S.*, J.A. Malmquist**, and **S.M. McGillivray**, 2019, Discovery of novel iron-acquisition gene in *Bacillus anthracis* Sterne. Spring Meeting of the Texas Branch of the American Society of Microbiology, New Braunfels TX. **Poster presentation.**

29. Losefsky, Q* and **S.M. McGillivray**, 2019, Role of ClpX and ClpP in antibiotic resistance in *Bacillus anthracis*, Spring Meeting of the Texas Branch of the American Society of Microbiology, New Braunfels TX. **Poster presentation.**
30. Malmquist, J.A.** , T. N. Kelly*, L.R. Callaghan*, M.R. Rogan*, **S.M. McGillivray**, 2019, Development of *Galleria mellonella* as an infection model for *Bacillus anthracis* Sterne, General Meeting of the American Society of Microbiology, San Francisco CA. **Poster presentation.**
31. Reeks, J. M.**, B. Thach, W. Moss, R. Maheshwari, I. Ali*, **S.M. McGillivray** and Y.M. Strzhemechny, 2019, Nano- and microscale ZnO with controllable abundance of surface polarity as a platform to study antibacterial action. 66th International AVS Symposium. Columbus, OH. **Oral presentation.**
32. Hattarki, M., Reeks, J.M. Reeks**, E. Davis, T. Haun, I. Ali*, **S.M. McGillivray**, and Y.M. Strzhemechny, 2019, Implementation of microscale ZnO with controlled morphologies to study the influence of surface polarity on ZnO antibacterial action. Joint Fall Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS. Lubbock, TX. **Poster presentation.**
33. J.M. Reeks**, I. Ali, J. Tzoka, D. Lopez, D. Johnson, S.M. McGillivray, Y.M. Strzhemechny, 2021, MRS Spring Meeting. Virtual Conference. **Oral presentation.**
34. Ali, I.*, A. Caron*, J.M. Reeks**, Y.M. Strzhemechny, and **S.M. McGillivray**, 2021, Mechanisms of zinc oxide antibacterial activity in *Staphylococcus aureus*. Heart of Texas Undergraduate Research Conference. Virtual Conference. **Oral presentation.**

INVITED SEMINARS

1. California State University Los-Angeles Department of Biological Science's seminar series in BioSecurity Research and Education. August 20, 2009
2. Department of Molecular Virology and Microbiology Seminar Series, Baylor College of Medicine, Houston TX, April 28, 2011.
3. IRACDA Fellowship Program, University of California, San Diego, March 22, 2012.
4. Department of Biology, University of Texas-Arlington, Arlington, TX March 21, 2013.

RESEARCH FELLOWSHIPS AND AWARDS

Barry M. Goldwater Scholarship Recipient, 1999
 NIH Contraception and Infertility Research Loan Repayment Program, 2002-2004
 Women in Endocrinology Excellence in Basic Science Award, 2005
 Institutional Research and Career Development Award (IRACDA) research and teaching fellowship from the National Institute of General Medicine 2006-2009
 Hartwell Foundation Biomedical Research Fellowship, 2009

RESEARCH AWARDS RECEIVED BY STUDENT COLLABORATORS

1. Chris Evans, Winner of the 2012 Howard J. Arnott Student Competition Award, Texas Society of Microscopy, April 2012
2. Julio Manceras. 1st place, undergraduate student presentation, Texas Branch of the American Society of Microbiology, Oct. 2012
3. Elizabeth Franks. 1st place, graduate student presentation, Texas Branch of the American Society of Microbiology, Oct. 2012
4. Elizabeth Franks. 2nd place, graduate student poster competition, North Texas Research Symposium, Nov. 2012.
5. Chris Evans. 1st place, graduate student poster competition. North Texas Research Symposium, Nov. 2012.
6. Chris Evans, Winner of the 2013 Howard J. Arnott Student Competition Award, Texas Society of Microscopy, April 2013
7. Vanessa Norris, finalist for Boller Award for best Honors Thesis presentation from the TCU Honors College. 2013
8. Kevin Claunch received \$2000 for a summer research fellowship from the American Society of Microbiology, Summer 2013
9. Kevin Claunch received the Boller Award for best Honors Thesis presentation from the TCU Honors College. 2014.
10. Kevin Claunch received 2nd place in the University 3-minute thesis competition. 2015.
11. Madeline Bush received first place in the undergraduate division of medical microbiology for her poster presentation at the Fall meeting of the Texas Branch of the American Society for Microbiology in Dallas TX. November 2016.
12. Quynh Ngo won the Best Student Poster (Undergraduate, Basic Sciences) for her poster presentation at the Spring meeting of the Texas Branch of the American Society for Microbiology in New Braunfels TX. March 2016
13. Madeline Bush received first place in the undergraduate division for her oral presentation at the spring meeting of the Texas Branch of the American Society for Microbiology in New Braunfels TX, March 2017.

14. Quinn Losefsky received first place in the undergraduate division of Pathogenic Microbiology for her poster presentation at the spring meeting of the Texas Branch of the American Society for Microbiology in New Braunfels TX, March 2019

SERVICE

DEPARTMENTAL SERVICE

Fall 2011	Chair, Instructor of Anatomy & Physiology Search Committee
Fall 2012	Member, Tenure-Track Physiologist Search Committee
Summer 2013	Member, Staff Lab Coordinator Search Committee
Fall 2013	Member, Tenure-Track Geneticist Search Committee
2012-2014	Faculty participant, Mondays at TCU
2014-present	Member, Biology Department Curriculum Committee
2018-2019	Member, Departmental Advisory Committee
2020-2021	Member, Departmental Advisory Committee
2021-2022	Member, Departmental Advisory Committee
2021-2022	Chair, Cell Biology Instructor Search Committee

COLLEGE SERVICE

2011-2013	Member, Health Professionals Advisory Committee
2013-2016	Member, College Curriculum Committee
2013-present	Associate Chair, Health Professionals Advisory Committee
2013-present	Associate Director, Pre-Health Institute
Fall 2019	Member, Pre-health Instructor Search Committee

UNIVERSITY SERVICE

June 2011, Faculty Facilitator at Frog Camp
August 2011, Common Readings
June 2012, Faculty Facilitator at Frog Camp
Spring 2021, Interim Faculty Senator
Spring 2021, Academic Excellence Committee (interim senator)

COMMUNITY ACTIVITIES

2018-2019, Judge at UNT Research Appreciation Day

PROFESSIONAL SERVICE

Manuscript referee: ACS Chemical Biology, Journal of Bacteriology, Scientific Reports, PloS One, Virulence, Developmental and Comparative Immunology, PloS Biology, Molecules, Toxins, Frontiers in Microbiology (Review Editor for Microbiology Physiology & Metabolism)

Memberships In Professional Organizations

American Society for Microbiology
Texas Association for Advisors of Health Professions

ACADEMIC ADVISING ACTIVITIES

2011: 27 advising appointments

2012: 42 advising appointments; 7 mock interviews

2013: 65 advising appointments; 12 mock interviews

2014: 150 advising appointments; 19 mock interviews; 23 professional school letters

2015*: 79 advising appointments; 17 mock interviews; 18 professional school letters

2016: 82 advising appointments; 22 mock interviews; 20 professional school letters

2017**: 0 advising appointments; 13 mock interviews; 17 professional school letters

2018: 69 advising appointments; 21 mock interviews; 20 professional school letters

2019: 109 advising appointments; 17 mock interviews; 21 professional school letters

2020: 146 advising appointments; 17 mock interviews; 22 professional school letters

2021: 139 advising appointments; 16 mock interviews; 16 professional school letters

** No advising in fall due to FMLA leave*

***No advising in spring or fall due to research sabbatical (spring) and FMLA leave (fall)*